INVESTIGATOR'S ANNUAL REPORT

United States Department of the Interior

National Park Service

All or some of the information you provide may become available to the public.

OMB # (1024-0236)
Exp. Date (11/30/2010)
Form No. (10-226)

Reporting Year:	**Park:**	**Select the type of permit this report addresses:**
2006	Shenandoah NP	Scientific Study

Name of principal investigator or responsible official:	**Office Phone:**
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Additional investigators or key field assistants (first name, last name, office phone, office email)

No co-investigators

Project Title (maximum 300 characters):

Timber Rattlesnake Population Monitoring

Park-assigned Study or Activity #:	**Park-assigned Permit #:**	**Permit Start Date:**	**Permit Expiration Date:**
SHEN-00058	SHEN-2002-SCI-0022	Jan 01, 2002	Dec 31, 2008

Scientific Study Starting Date:	**Estimated Scientific Study Ending Date:**
Jan 01, 1990	Dec 31, 2027

For either a Scientific Study or a Science Education Activity, the status is:

Continuing

For a Scientific Study that is completed, please check each of the following that applies:

__ A final report has been provided to the park or will be provided to the park within the next two years

__ Copies of field notes, data files, photos, or other study records, as agreed, have been provided to the park

__ All collected and retained specimens have been cataloged into the NPS catalog system and NPS has processed loan agreements as needed

Activity Type:

Monitoring

Subject/Discipline:

Herpetology (Amphibians / Reptiles)

Purpose of Scientific Study or Science Education Activity during the reporting year (maximum 4000 characters):

1. Locate overwintering dens and birthing rookeries. 2.Determine movements of snakes. 3. Determine timing of seasonal activities. 4.Determine rates of growth, shedding, maturation, reproduction, and survivorship. 5. Investigate annual variations in life history characteristis. 6. Investigate relationship between weather, acorn production, rodents, and rattlesnake reproduction. 7. Investigate relationship between weather and failure to bring the young to term. 8. Determine long-term population trends.

Findings and status of Scientific Study or accomplishments of Science Education Activity during the reporting year (maximum 4000 characters):

A total of 10 days were spent in Shenandoah NP in 2006 from 25 April to 10 October. Ten separate sites were visited, one of them four times. A total of 130 rattlesnakes older than the newborn-stage were seen. Of 114 sub-adult to adult (4-years old and older), 33 were reproductive during â 06. The demographic breakdown by year-cohort for 16 juveniles was two post-shed â 06 young-of-year, four from â 05, four from â 04, three from '03, and three from â 02. In addition a minimum of eight litters (â 06 cohort) were observed.

Thirty-eight rattlesnakes were observed on 25 April at three separate denning areas encompassing about a mile of mountainside 1300

to 1700 feet elevation. One hibernaculum was newly discovered that day. Upon retuning to this same area on 10 October, near the end of ingress, 10 rattlesnakes were seen. Parturition apparently commenced sometime between 18 and 25 August with 12 pregnant females seen on the former date at the same site which was visited on 25 April and 10 October. Upon returning to the site on 25 August, seven postpartum females and five litters of pre-shed newborn were found. The last date on which a pregnant female was observed in Shenandoah was 6 September when three postpartum females with litters and one pregnant female were seen at about 2600 feet elevation.

Reproduction was low to moderate in 2006 with the exception of the site surveyed on 18 and 25 August. Twelve pregnant females, plus 17 copperheads, most of which appeared to be gestating females were observed. Considering that the weather conditions were not favorable for viewing snakes on either day, the number compares favorably to the highest number of reproductive females recorded at the site (19 in September of 2003).

The big reproductive cohorts that gave birth in 2000 and 2003 should have done so again on a 3-year cycleâ the normâ but most failed to do so. The most likely cause would be a failure of the mast crop at a critical time.

For Scientific Studies (not Science Education Activities), were any specimens collected and removed from the park but not destroyed during analysis?

No

Funding specifically used in this park this reporting year that was provided by NPS (enter dollar amount):	**Funding specifically used in this park this reporting year that was provided by all other sources (enter dollar amount):**
$0	$2000

List any other U.S. Government Agencies supporting this study or activity and the funding each provided this reporting year: